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Executive Director,  
NATURAL RESOURCES

CLEON B. FEIGHT  
Director

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS, AND MINING  
1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

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January 30, 1981

Mr. Carroll J. Hart, President  
Luki Milling Corporation  
P. O. Box 1075  
Vernal, Utah 84078

RE: Conditional Tentative  
Approval  
Tibbetts Placer Mine  
ACT/019/001  
Grand County, Utah

Dear Mr. Hart:

The Board of Oil, Gas and Mining in its Executive Session on January 22, 1981, concurred with the Division's recommendations that conditional tentative approval be granted to Luki Milling Corporation for its proposed placer mining operation in Grand County, Utah. The Board also approved the amount of the reclamation surety estimated by the Division and requested that it be submitted in the form of any of the enclosed surety types. A copy of the surety estimate is enclosed.

Pending no adverse public comment and prior to issuance of final approval, Luki Milling Corporation must post the required reclamation surety and meet the following conditions.

1. Submit copies of laboratory analyses delineating the effectiveness of the off-site testing of the reclaim process for the waste water produced following the amalgamation procedure.
2. Provide copies of agreement(s) (BLM and private landowner) verifying the right to utilize the existing right-of-way accessing the proposed mine site.
3. Provide copies of all State permits and/or approvals pertinent to the commencement of said operations (State Health, Water Rights, State Lands, etc.).

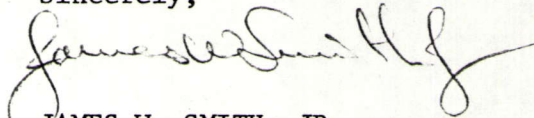


Ms. Carroll J. Hart, President  
ACT/019/001  
January 30, 1981  
Page two

4. Provide the required reclamation surety. Applicant must agree to comply with the contemporaneous reclamation conditions and procedures as set forth in the attached surety estimate. If this is not acceptable to the applicant, than any modifications and surety adjustments must be worked out with the Division prior to final approval.
- ✓ 5. Applicant shall review the attached revegetation plan which was requested from the Division and make a commitment to utilize said plan, or propose a comparable plan.
- ✓ 6. Submit copies of the information required by the Department of Health as outlined in the attached letter from Mr. Steven R. McNeal (Bureau of Water Pollution Control).
- ✓ 7. Submit information as required under the Notice of Intention to Commence Mining Operations, Title 40-8-13(1), (Evidence of adequate insurance policies).
- ✓ 8. Submit a topographic map with projected location for surface facilities, property boundaries and acreages properly depicted. This should also include all access roads, location of proposed areas for storage of topsoil, waste-rock, diversions, water storage and waste water settling ponds (Rule M-3 and M-6). 1" = 100 ft.
- ✓ 9. Provide a commitment to stake off and conspicuously post the 100-foot buffer zone at intervals of 100 feet for the entire length of the proposed operation.

The Division will postpone further action on this application until the required information and surety is received. If you have any questions regarding these requirements, please call Wayne Hedberg or myself.

Sincerely,



JAMES W. SMITH, JR.  
COORDINATOR OF MINED  
LAND DEVELOPMENT

cc: John Blake, State Lands

Enclosure

JWS/DWH/btm



Scott M. Matheson  
Governor



James O. Mason, M.D., Dr.P.H.  
Executive Director  
801-533-6111

DIVISIONS

Community Health Services  
Environmental Health  
Family Health Services  
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State Health Laboratory

STATE OF UT  
DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH  
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

533-6146  
December 31, 1980

Alvin E. Rickers, Director  
Room 426 801-533-6121

File Act 1019/001  
Copy to Wayne  
Jim

Carroll J. Hart, President  
Luki Milling Corporation  
P.O. Box 1075  
Vernal, Utah 84078

RECEIVED

RE: Placer Mill Wastewater

Dear Mr. Hart:

DIVISION OF  
OIL, GAS & MINING

I have reviewed the Lucki Milling Corporation application submitted December 16, 1980 for a gold mine and amalgamation mill northeast of Moab, Utah. The proposal for an unlined wastewater pond is unacceptable, if this wastewater contains mercury and other heavy metals.

To enable us to evaluate any further proposal the company should submit the following information to show compliance with the Utah Water Pollution Control Act.

1. Chemical analysis of a test solution or similar milling operation. This should include pH, TDS, mercury and other heavy metals listed in part II of the Wastewater Disposal Regulations.
2. Volume of the wastewater.
3. Type of liner and seepage rate
5. Size of construction lifts and compaction specifications.
6. Slope of dikes.

If you have any questions regarding these requirements you may call me at 533-6146.

Sincerely,

Steven R. McNeal  
Public Health Engineer  
Bureau of Water Pollution Control

laf

cc: Oil, Gas & Mining  
Southeastern District Health Department  
Southeast 208



TIBBETTS PLACER MINE

ACT/019/001

Revegetation species list recommended by Division of Oil, Gas & Mining.

Seed Availability

Grasses

X	Big bluestem	<u>Andropogon gerardi</u>
?	Inland saltgrass	<u>Distichlis spicata</u>
X	Reed canary grass	<u>Phalaris arundinacea</u>
X	Sand dropseed	<u>Sporobolus cryptandrus</u>
X	Streambank wheatgrass	<u>Agropyron riparium</u>
X	Switchgrass	<u>Panicum virgatum</u>
X	Tall wheatgrass	<u>Agropyron elongatum</u>
X	Western wheatgrass	<u>Agropyron smithii</u>

Forbs

X	Utah sweetvetch	<u>Hedysarum boreale</u>
X	Pacific aster	<u>Aster sp.</u>
X	Alsike clover	<u>Trifolium hybridum</u>
X	Yellowsweet clover	<u>Melilotus officinalis</u>

Shrubs/trees

Willows, 6" cuttings, stuck in sand in early spring.  
Spreading rabbitbrush Chrysothamnus linifolius  
(use stem or root cuttings or seed)

It is suggested that 25-30 lbs of seed be used per acre. At least four species of grasses are recommended to be chosen for use from the list. One or two species of forbs should be used. Both species of shrubs/trees should be used. A ratio of 3:1:1 of grasses/forbs/shrubs is recommended.



EXCERPTS FROM PUBLICATION NO. 68-3

"Restoring Big-Game Range in Utah"

- Dormancy of most seeds is broken by stratification-subjecting them to temperatures between 32° and 40° F. for a period of 6 to 20 weeks in moist sand, peat moss, or moist newspaper. Subjecting seeds to outside wintertime temperatures for similar periods also overcomes dormancy. Of course, fall and winter plantings take advantage of the cool temperatures and thus break dormancy naturally.

- Seeds must have a light covering of soil-usually one-fourth to one-half inch. Very small seeds (e.g., rubber rabbitbrush, big sagebrush, and sand dropseed) need no more than one-fourth inch of cover. Chaining and pipe harrowing are not likely to cover broadcast seed too deeply, and bolting depth rings to the disks prevents too deep covering in drilling. Covering seeds by more than one-half inch of soil generally reduces emergence. Deep planting is seldom desirable. Likewise, leaving seed uncovered after broadcasting is unsatisfactory except when moisture at planting time is unusually abundant.

When slopes are too steep for use of heavy machinery, planting must be done by hand. On such areas, corn planters or specially built Schussler<sup>6</sup> bitterbrush planters can be used advantageously to gage the depth and number of seeds planted of most species. Other similarly designed planters are available and can speed up hand-seeding on slopes.

Some compaction helps to improve stands, especially when seeds are planted in the spring. Packer wheels that follow the planting units on drills are particularly useful. Culti-packing or compaction by similar implements improves stands on soils that dry rapidly. The area where soil-packing equipment can be used to advantage is small, but it is worthwhile to use it when needed.

- Planting should be done in a season that gives promise of optimum conditions for establishment. Planting for range restoration may be either seeding or transplanting. Seeding is the usual means of establishing grasses, forbs, and a few shrubs; some shrubs can be propagated more satisfactorily by transplanting, and best success has come from transplanting in the spring.

Direct seeding in late fall and throughout the winter (mid-October through mid-February) gives good stands of most species. Although spring seeding of a few species (notably alfalfa, small burnet, fourwing saltbush, and winterfat) has sometimes been successful, it cannot be generally recommended. Winter seeding (late January and early February) on 5,000 acres of Daggett and Duchesne Counties successfully established alfalfa and fourwing saltbush. Wherever climate permits, winter seeding is preferred because it avoids the inherent dangers of precocious germination resulting from unseasonably warm temperatures for short periods in the fall.



Four major advantages of fall or winter seeding over spring seeding are:

1. It overcomes inherent dormancy.
2. Cold winter temperatures stimulate seedlings into more rapid growth.
3. The longer period of available adequate moisture produces larger seedlings, which can better withstand heat and drought in summer.
4. Loss of seed to seed-collecting animals is reduced because many of these animals hibernate.

When shrubs that have dormant seed must be seeded directly in the spring, seeds should be treated with a 3-percent solution of thiourea for 3 to 15 minutes to overcome some of this dormancy and to improve both emergence and establishment. This is particularly true for antelope bitterbrush. Planting of stratified seed is generally more successful for a greater number of species. However, care must be taken that stratified seeds do not dry out. Spring planting should be done as soon as the soil is dry enough to get necessary equipment on the land. This is usually before April 15 on Utah ranges. In the warmer blackbrush type in southwestern Utah, spring seeding should be completed before March 1. The suitable period for successful spring seeding (2 to 6 weeks) is short, contrasted with the 4-month suitable period through late fall and winter.

Transplanting of nursery stock, seedlings, and wildlings is usually most successful when completed while the ground is still moist from snowmelt. Spring transplanting should be done as soon as it is possible to get equipment on the land. Fall transplanting frequently fails because the ground has become so dry that the roots dry out and die. Bud sagebrush and common iris can be planted either in the spring or in the fall; both grow well after fall transplanting despite dry soil. Late fall planting of wildlings of these two plants, even into dry soil, survived nearly 100 percent; whereas a similar planting of big sagebrush and rubber rabbitbrush failed completely.

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<sup>6</sup>This bitterbrush seed planter was designed by Mr. Howard Schussler of Caldwell, Idaho.



## MULCHES

Mulches are particularly important in obtaining a satisfactory stand of seeded plants on harsh sites. They conserve soil moisture by reducing evaporation from the soil surface, and help minimize erosion.

Where annual precipitation is between ten and 18 inches, mulches are highly conducive to seedling establishment. This is particularly true on south and west facing slopes. In areas where annual precipitation is between 18 and 25 inches, mulches are not generally needed except perhaps on some extended south or west facing slopes. On arid areas where annual precipitation is between eight and ten inches, seeding success is variable even if mulches are used. Seedlings in areas receiving less than eight inches of annual precipitation are subject to failure unless environmental conditions are considerably better than average during the establishment period or supplemental water is added.

Trials show that desert areas are almost impossible to seed artificially unless seeded in pits or basins along with mulches and added water. In arid areas where annual precipitation is less than eight inches, native grasses vegetation will regenerate itself in disturbed areas if slopes are gentle. This may require from ten to 30 years unless supplemental water is added as needed.

Mulches conserve substantial soil moisture to a depth of 12 inches or more, resulting in a greater number of established seedlings and a more dense herbage cover than areas seeded without mulches. Therefore, most mulches, when properly applied, give added benefits in obtaining a stand of vegetation on disturbed areas.

### Types of Mulches

Many mulches are applied uniformly on the soil surface by mechanical means. Such mulches are universally adapted to most soil and slope conditions.

Wood Fiber - Wood fiber at 1,500 pounds per acre gives consistently favorable results under all conditions except in areas where frost heaving or excessive surface water flow exists. If wood fiber is applied at rates less than 1,000 pounds per acre or on steep unstable slopes, little benefit will be obtained.



Straw-asphalt: Straw at 3,000 pounds per acre, bound with asphalt at 300 gallons per acre, gives beneficial results but this mulch is expensive and is susceptible to being carried away by wind and water. Straw is often contaminated with grain and weed seed that produces excessive competition with newly planted grass seedlings. Straw-asphalt mulch establishes better stands than wood fiber where winter and early frost heaving is a serious problem.

Soil-anchored Mulch: Either straw or hay can be distributed uniformly over the soil surface after broadcast seeding and held in place by punching it into the surface soil with either a mulch tiller, a modified sheeps-foot roller, or a weighted agricultural type disc. These methods for anchoring the mulch adequately cover the seed, so it is not necessary to cover the seed prior to adding mulch.

\*Adapted from Revegetation Guidelines for Surface Mined Areas, Range Science Series #16.